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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,552	02/27/2002	Hiroshi Nakamura	001701.00672	8483

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BANNER & WITCOFF
1001 G STREET N W
SUITE 1100
WASHINGTON, DC 20001

EXAMINER
TRA, ANH QUAN

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,552	NAKAMURA, HIROSHI	
	Examiner	Art Unit	
	Quan Tra	2816	

-- The MAILING DATE of this communication appears n the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *09/656831* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This office action is in response to the amendment filed 09/13/2002. The rejections under the judicially created doctrine of obviousness-type doubled patenting and under 35 U.S.C. 103 (a) in previous office action have been withdrawn in view of applicant persuasive argument. The rejection in view of Bill et al. is maintained.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bill et al. (USP 5059815).

As to claims 1, 11, 21 and 22, Bill et al. discloses in figure 3 a circuit comprising: a boost unit group including a plurality of boost units (350, 360) series-connected between input and output nodes (Vout); a first transistor (310) connected between the input node and a node for receiving a first voltage (Vpp), wherein each boost unit has input and output portions, a second transistor having a both gate and a drain connected to the input portion and a source connected to the output portion, and a second capacitor (C3, C4) in each boost unit connected to the input portion, a source of the second transistor of the first boost unit being directly connected to the input portion of the second boost unit, and a gate of the first transistor is directly connected to the input portion of one of boost unit (360). Thus, figure 3 shows all limitations of the claims except for a first capacitor coupled to the output node. However, Bill et al.'s figure 1a shows a first

capacitor (CL) coupled to the output node of the charge pump circuit for the purpose of filtering the output signal. Therefore, it would have been obvious to one having ordinary skill in the art to add a first capacitor (CL) to the output of the charge pump circuit figure 3 for the purpose of filtering the output voltage.

As to claims 2 and 12, Bill et al.'s figures 1a and 3 show all limitations of the claim except for the boost unit group includes not less than three boost units. However, it is well known in the art the more number of boost units, the higher the output of voltage. Therefore, the selection for the boost unit to have not less than three boost units is seen as a matter of design choice depending on the design output level voltage (column 3, lines 15-25 also teaches number of boosting unit is a matter of design choice).

As to claims 3, 10, 13 and 20, figure 2 shows a third transistor (250) which has a gate connected to the output node, and transfers a third voltage (VppI), wherein a second voltage at the gate of the third transistor is equal to, or larger than a sum of the third voltage and a threshold voltage of the third transistor (V270 = VppI + Vgate-source, wherein Vgate-source = threshold voltage) in transferring the third voltage.

As to claims 4 and 14, figure 3 shows a first oscillation signal /Φ is input to an even-numbered boost unit from the input node, a second oscillation signal ϕ is input to an odd-numbered boost unit from the input node, and the first and second oscillation signals have opposite phases or different timings.

As to claims 5 and 15, it is inherent for gate and source voltage levels of the first transistor gradually rise while changing in opposite phases.

As to claims 6 and 16, figure 3 shows a circuit (340) for fixing the gate of the first transistor to low level in an OFF state.

As to claims 7-9 and 17-19, figures 1a and 3 shows all limitations of the claims except for a threshold voltage of the second transistor in at least one of the boost units is lower than a threshold voltage of the first transistor; or a transistor having a threshold voltage lower than the threshold voltage of the first transistor is arranged in a boost unit closest to the output node; a threshold voltage of a transistor in a boost unit on the output node side is lower than a threshold voltage of a transistor in a boost unit on the input node side. However, it is well known in the art that threshold of the diode connected transistors e.g. 350, 360... determined the level of the voltage output. Therefore, it would have been obvious to one having skill in the art to select the threshold of all diode connected transistors in the boost unit to be less than the threshold of the first transistor for the purpose of reducing the output voltage level.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 703-308-6174. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QT
October 21, 2002

Terry D. Cunningham
Primary Examiner